

3.12 TRANSPORTATION AND TRAFFIC

Transportation systems in the Humboldt Area include roads, rail, water, public transportation, specialized transportation, and pedestrian and bicycle systems. Key elements of the transportation and traffic analyses are as follows:

- Level-of-service (LOS)/congestion changes
- Maintenance and physical system effects due to changes in use
- Safety and exposure to accidents due to changes in use

To understand the effects of the project alternatives in these terms, the transportation systems and traffic conditions in the Humboldt Area are described below.

3.12.1 AFFECTED ENVIRONMENT

3.12.1.1 Humboldt Area

Highway and Roadway System

The area of focus is served by a substantial roadway system comprising highways or state routes (SR), Humboldt County roads, and local jurisdiction streets. The roadways provide access for logging and lumber processing vehicles within PALCO holdings via logging roads and trails developed by PALCO.

Highways

Route locations in Humboldt County and traffic volumes for the highway and expressway system for key route segments are presented in Figure 3.12-1 (CALTRANS, 1996a, b). The key highways serving the Humboldt County Area affected by this project are as follows:

Highway US 101—This highway provides the major north-south route through Humboldt County. This route connects to the state of Oregon to the north and southern California to the south. The route varies from four-lane expressways to two-lane rural highways. The two-lane sections have truck climbing lanes and passing lanes as the terrain and right-of-way permit. The portion of this route which is of direct concern is between SR-299 to the north and the Eel River Bridge to the south (CALTRANS, 1994).

SR-36 Highway—This highway provides the major east-west route through the southern half of Humboldt County, connects to Highway US 101 to the west, and to Trinity County to the east. SR-36 is a two-lane rural highway with occasional truck climbing lanes and passing lanes as terrain and right-of-way permit. The route passes through the easterly portion of the PALCO-owned forest lands (CALTRANS, 1989a).

SR-255 Highway—This highway provides access around the north and west sides of Arcata Bay/Humboldt Bay. The route is a four-lane urban highway which forms a loop connecting to US 101 via “R” Street in the city of Eureka and via 4th Street in the city of Arcata. It crosses Humboldt Bay on two bridges using Woodley Island and Indian Island as foundation points. SR-255 comprises four lanes divided from “V” Street to US 101 in the city of Arcata and connects to water shipping and wood processing facilities along Arcata Bay/Humboldt Bay (CALTRANS, 1989b).

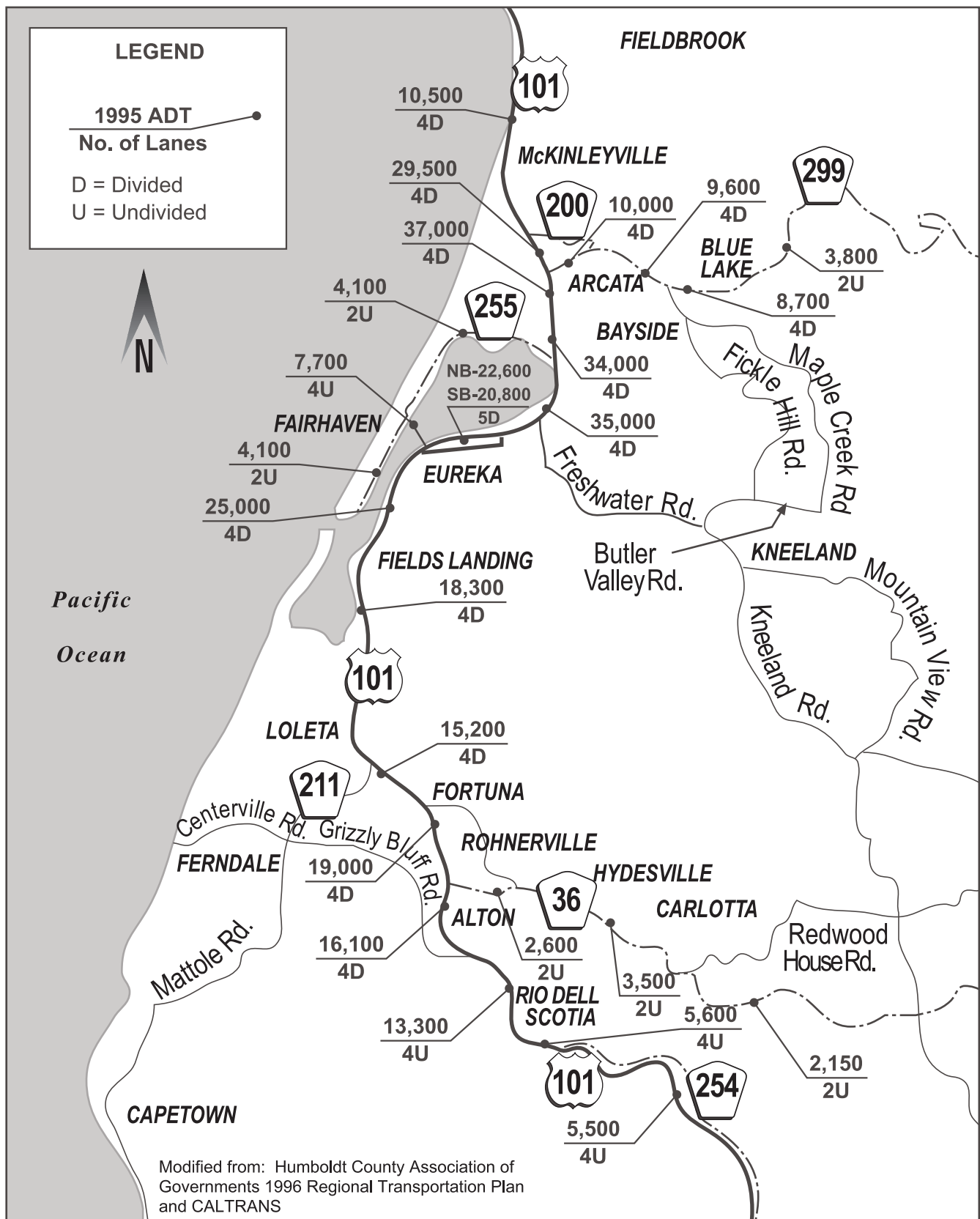


Figure 3.12-1.
State Highway and Expressway System
with 1995 Traffic Volumes and Number of Lanes

SR-299 Highway—This highway provides the major east-west route through the northern half of Humboldt County. This route is a four-lane divided urban highway from the junction with US 101 to east of the Glendale Drive interchange in the community of Blue Lake. From the interchange, it becomes a two-lane undivided rural road to the Trinity County line. The route continues as a rural highway to the city of Redding in Shasta County. This route is designated a National Scenic Byway Route. While not directly serving the PALCO-owned forest lands, SR-299 provides access to potential areas to supplement the supply of logs to PALCO (CALTRANS, 1989c).

County Roads

Several key county roads provide access for existing and potential PALCO-owned forest lands, and to the lumber processing and shipping facilities which serve the logging industry in the region (Humboldt County Association of Governments, 1996). The county road system elements are shown in Figure 3.12-2. The following roads are identified as key county facilities:

Elk River Road—This road is a minor arterial in the county's roadway classification system. The road connects with US 101 to the northwest and parallels the Elk River from Zanes Road to the South Fork of the Elk River. It then continues along the easterly side of the South Fork of the Elk River to a dead end at the west boundary of the proposed Reserve. A dirt trail continues into the forest lands from the end of Elk River Road. The trail is very steep and suitable only for hiking. Elk River Road is a two-lane road with improved paved shoulders for most of its length. Elk River Road is currently the only paved public access to within walking distance of the proposed Reserve.

Kneeland Road—This road, in combination with Alderpoint Road, forms a major north-south county route through the PALCO

forest lands. The road is a two-lane county road with gravel shoulders. It extends from Freshwater Road to the north, then south to its junction with SR-36 where it meets Alderpoint Road.

Alderpoint Road—This road, in combination with Kneeland Road, forms a major north-south route approximately parallel to US 101 through PALCO property. It is a two-lane county road with improved paved shoulders. Alderpoint Road begins at the junction with SR-36 to the north, and continues south to Zenia Bluff Road where the alignment swings to the west and connects to US 101 north of Garberville.

Freshwater Road—This road provides access to the northern portion of the PALCO forest lands from its beginning at the junction of US 101 west to its intersection with Kneeland Road to the east. The road is a two-lane rural road with improved paved shoulders. This road forms part of a loop consisting of Kneeland Road/Butler Valley Road/Maple Creek Road which connects US 101 to SR-299 at Blue Lake.

Butler Valley Road/Maple Creek Road—These two county roads form a loop through the northernmost PALCO lands. The roads connect with Kneeland Road to the south and SR-299 to the north. Both are two-lane roads with improved paved shoulders.

Redwood House Road—This road provides access from SR-36 directly east to Kneeland Road to the PALCO lands east of Scotia and west of Kneeland Road. Redwood House Road is a two-lane road paved with gravel or dirt shoulders.

Mountain View Road/Showers Pass Road—These two county roads combine to provide a loop route that connects with Kneeland Road at Kneeland on the east side of PALCO lands and extends south to connect again to Kneeland Road at the intersection

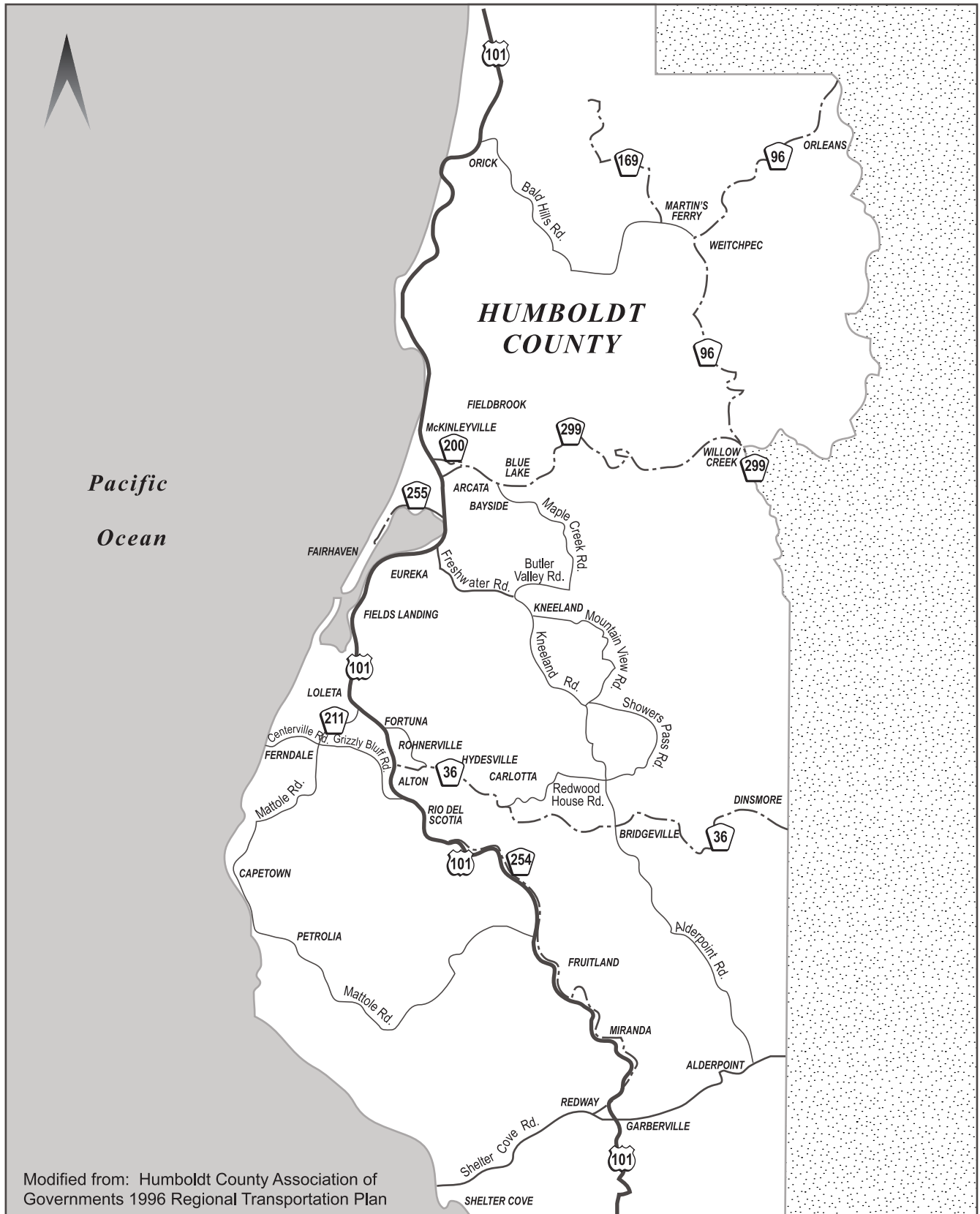


Figure 3.12-2.
Humboldt County Road System

with Redwood House Road. Mountain View Road connects with Kneeland Road to the north, and Showers Pass Road connects Kneeland Road to the south. Together, these roads provide direct access to much of the PALCO lands. These two roads are two-lane county roads with gravel or dirt shoulders.

Mattole Road—This road forms a loop route which encircles the PALCO lands located west of US 101 and south of Scotia. Mattole Road connects to US 101 at the point where the Eel River splits into the East and South forks of the river and runs west through Humboldt Redwoods State Park to Honeydew, then turns north to the coast, northeast at Cape Mendocino Lighthouse, passes through Ferndale, and connects to SR-211 which connects to US 101 north of Fortuna. Mattole Road is a two-lane county road with improved paved shoulders.

Local Roads

Key local roads provide access to the shipping points for logs and the destinations for the processing of logs into timber products (Humboldt County, 1994). The locations of the lumber mills, rail freight loading facilities, and water transport facilities are distributed primarily in the Eureka and Humboldt Bay Area. Of special significance is the use of the local street system in Eureka to provide routes for US 101 through Eureka (Figure 3.12-3). The following streets are considered significant:

Fourth Street/Fifth Street Couplet—This one-way pair of local streets in the city of Eureka is also part of the US 101 alignment. The streets connect on the east with the US 101 divided freeway section and on the west with Broadway Avenue. Broadway Avenue is a north-south arterial which combines with the one-way couplet to compose the US 101 alignment through the city. Fifth Street is one-way eastbound with three lanes for traffic flow, gutter, and concrete curb. Fourth Street is one-way

westbound with three lanes for traffic flow, gutter, and concrete curb. The intersections with Broadway Avenue are traffic-signal controlled.

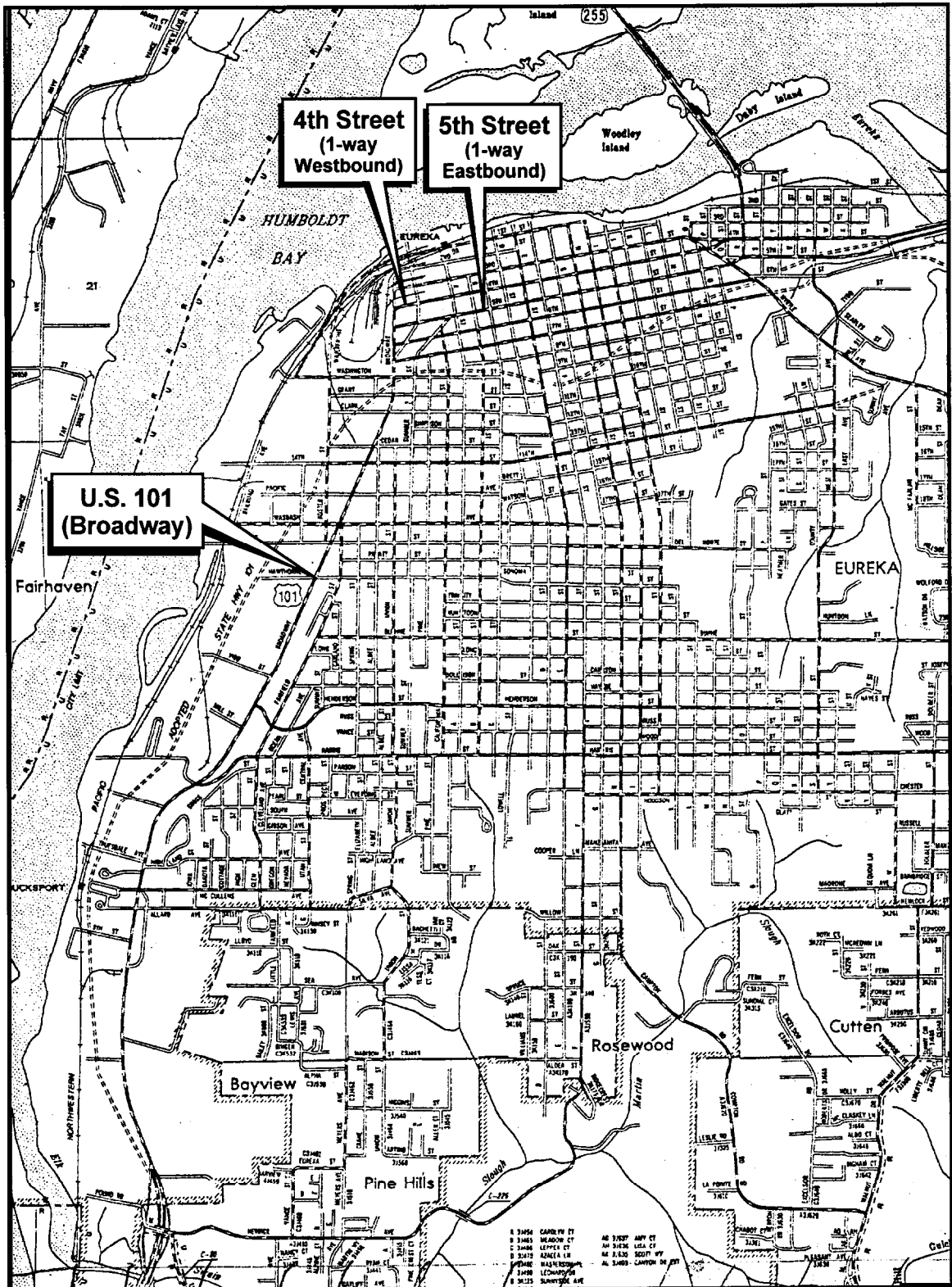
Broadway Avenue—This road is also a part of US 101 through Eureka. The route connects to the Fourth/Fifth Street couplet on the north and to the US 101 freeway section just north of Herrick Road to the south. Broadway Avenue is a six-lane undivided arterial with gutters and curbs for most of the length of the roadway. The south Broadway area has had significant retail development and has become a major regional shopping destination. There are currently 10 signalized intersections along the commercial/retail stretch on Broadway between K-mart and Sixth Street.

Other Local Streets—Several destinations for logging and lumber trucks are located in the Eureka area. These destinations are served by various local roads and streets. These streets currently handle the truck traffic with a minimum of inconvenience to local passenger car traffic. These streets are typically two lanes with various levels of shoulder improvements.

Logging Roads and Fire Trails

Existing logging access roads and forestry fire trails weave throughout most of the undeveloped coastal mountain range. CDF fire trails are developed and maintained by the state in the publicly owned forest lands adjacent to the PALCO properties. PALCO develops and maintains the logging and fire break roads within its ownership.

Within the proposed Reserve, the only roads are private access roads which are used by PALCO and the Elk River Timber Company. In some cases, the logging roads are left from the previous harvesting of logs in the buffer areas surrounding the proposed Reserve. In other cases, the roads have been established to allow surveying of timber for classification purposes. None of



SOURCE: State of California Department of Transportation, Humboldt County Map Book (1993)

Figure 3.12-3.
Key Local Road Facilities in Eureka

these roads provides all-weather access to the site. These roads access the County Road System via a paved road which parallels Salmon Creek south of the proposed Reserve.

The December 12, 1996, SYP prepared by PALCO estimates 1,520 miles of existing and proposed roads for the PALCO forest lands during the life of the plan (PALCO, 1996). This averages at about 4.8 miles of road per square mile of property; however, the amount of roads varies from WAA to WAA within the ownership. There are five WAAs identified within the PALCO properties. The roads vary from paved sections to dirt trails. Table 3.12-1 provides a breakdown of the roads by type.

Appendix N of the SYP addresses the guidelines which PALCO proposes to follow for the up-grading, abandonment, and construction of forest roads and landing within its ownership. These guidelines will provide a basis for evaluating the existing conditions of the system.

Rail System

The North Coast Rail Authority, a publicly owned railroad company, operates 174.5 route miles of track and rail equipment in Humboldt County (Humboldt County Association of Governments, 1996; personal communication, Spencer Clifton, Executive Director, Humboldt County Association of Governments). Rail freight service is designed to serve the lumber industry. Both log cars and finished lumber product cars are provided by the railroad which provides service on abandoned Northwestern Pacific tracks and rights-of-way through the county.

Main line tracks extend south from Eureka 141.6 miles to join the national system at a point approximately three miles north of Willits. The southbound tracks follow the US 101 alignment to the East Fork of the Eel River to Willits, then join the national rail system. From Eureka, the Korblex

branch extends 11.5 miles north through Arcata to Korblex; the track then extends seven miles east to a point near Korbel. The Samoa branch tracks provide access to the Arcata and Humboldt bays, running south along the coast from Arcata for 10.4 miles to Fairhaven. Sidings are provided at the docks and storage yards in Eureka and across the Bay in Samoa. From Alton, 21.4 miles south of Eureka, a branch extends five miles to Carlotta.

At present, about 20 percent of Humboldt County's outbound timber traffic moves by rail. Total annual carloadings have totaled 6,000 in recent years.

Water Transportation System

Docks and loading facilities for shipping logs and finished lumber products are located in Eureka, Arcata Bay, and South Humboldt Bay. Humboldt Bay is a single body of water covering approximately 25.5 square miles and is located 209 nautical miles north of San Francisco and 156 nautical miles south of the next deepwater port at Coos Bay, Oregon. Humboldt Bay is the only California port north of San Francisco with sufficient depths to admit ocean freighters and tankers (Humboldt County Association of Governments, 1996). The Corps maintains the ship channels by dredging.

The Humboldt Bay Harbor, Recreation and Conservation District (District) was established by the electorate of Humboldt County on April 17, 1973, to implement, supervise, and regulate the development of Humboldt Bay. The District is empowered by state statutes to develop Humboldt Bay to its ultimate potential as a harbor and port while conserving the natural resources of the area.

Timber products and wood pulp currently account for the majority of maritime shipping from Humboldt Bay. The only other significant commodities are chemicals (primarily sodium hydroxide and chlorine

Table 3.12-1. Road Types on PALCO Lands

Road Type	Humboldt Bay WAA	Yager WAA	Van Duzen WAA	Eel WAA	Bear-Mattole WAA	Total
Armor	10.15	26.29	0.0	16.83	31.11	84.38
Rock	99.66	146.29	48.91	151.54	5.78	452.18
Proposed	51.32	17.29	11.44	58.27	11.75	150.07
Proposed for Abandonment	0.58	0.0	0.0	0.0	0.0	0.58
Reconstructed	8.39	0.53	3.33	15.74	2.74	30.73
Other	146.14	117.65	113.73	328.67	96.02	802.21
Total Road Miles	315.24	308.05	177.41	571.05	147.40	1,520.15
Miles/Miles of PALCO Lands	5.2	5.8	4.5	4.9	3.1	4.8
Source: PALCO (1998)						

for use in pulp processing) and petroleum products (gasoline and fuel oil). While bay vessel traffic has declined over the years, the increased capacity of modern ships has held freight volumes relatively constant. In addition to selected logs and wood pulp, wood chips previously burned as waste at the sawmills began to be a significant export in 1971. Since then, exports have increased from 14,245 tons to 171,840 tons, accounting for an additional 30 percent of the local export volume in 1991. Japan is the principal importer of the wood chips, select logs, and wood pulp, and uses the chips and pulp for paper production.

Humboldt Bay has seven docks serving oceangoing dry cargo vessels, along with several privately owned oil docks.

Based on the Humboldt Bay Harbor District studies, the docks on Humboldt Bay are adequate for the current needs of the forest products industry, which is a 15 to 25 percent capacity.

Public Transportation System

Humboldt County has an integrated public transit service comprising of separate operating agencies. The systems provide for intersystem transfers and have integrated schedules so that the systems interconnect at convenient points of service. The following publicly operated transit

systems serve the county (Humboldt County Association of Governments, 1996).

Eureka Transit Service (ETS)—Public transit has been provided in the city of Eureka by this system since 1976. The six-vehicle system is co-owned and co-funded by the City of Humboldt and Humboldt County through an agreement to extend service into the contiguous incorporated areas.

Arcata and Mad River Transit System (A&MRTS)—This transit program, the first in Humboldt County, provides a two-route pulsing loop system within the unincorporated boundaries of Arcata. The A&MRTS fleet consists of four 30-foot buses and two smaller Dial-A-Ride/Dial-A-Lift (DAR/DAL) vehicles. A multimodal transfer station providing for transit users, interregional travelers, bicyclists, ridesharing, and pedestrian users is centrally located to the system.

Redwood Transit System (RTS)—The RTS program is delivered by the Humboldt Transit Authority to its joint members and contracting entities. The program generally runs along the US 101 corridor. The RTS fleet consists of nine large and four smaller transit vehicles, which are equipped with handicapped lifts. All buses have bike racks, 16 covered shelters are provided, and most stops have benches.

Transit System Coordination—The transit operators in Humboldt County have implemented intersystem transfer policies to further aid the coordination of public transit services.

In addition to the public transportation services available to the general public by public operators, there are also services provided by private sector operators. These include Yellow Cab of Eureka, Greyhound bus service, and AMTRAK services. Greyhound provides two daily trips to San Francisco, and one each to Portland and Medford, Oregon. AMTRAK provides a daily trip from Arcata through Healdsburg to the San Francisco Bay Area.

Specialized Transportation Services

These services are designed to provide transportation for specific groups of people. These include physically disabled persons, students, and elderly groups. The most familiar special service is that provided by the school districts for student transportation (Personal communication, Tom McGinness, Transportation Supervisor, Humboldt County Office of Education, Eureka, California, 1997). Public paratransit service areas are designed to meet the needs of these different groups.

The 13 school districts within the Humboldt area have 48 buses running from 6:00 a.m. to 9:00 a.m., an average of 15 buses running between 11:30 a.m. and 1:00 p.m., and 48 buses running from 2:30 p.m. to as late as 6:00 p.m. every weekday. The school bus routes travel most of the street and highway system identified in the previous sections. The streets and roadways most likely to be affected by the project are adjacent to the city of Eureka. These would include Myrtle Road, Freshwater Road, Kneeland Road, Butler Valley Road, Maple Creek Road, Elk River Road, US 101, and SR-36.

Pedestrian and Bicycle System

Bicyclists can use all the state, county, and city roads. Bicycle improvements in Humboldt County have been spurred by the fact that the three largest cities, Eureka, Arcata, and Fortuna, as well as the county, have adopted bike and trail plans. Redwood Transit System provides bicycle racks on its buses in order to better integrate the region's bicycle facilities with public transit.

3.12.2 Environmental Effects

Evaluation of the transportation and traffic effects is focused on Humboldt County, which contains the Headwaters Forest and PALCO lands. The exact timing and nature of logging on PALCO lands is unknown. The aggregate harvest yields and distribution by WAA, as well as the alternatives, are defined in the proposed HCP/SYP (PALCO, 1998).

Most of the assessment of transportation and traffic effects is based on assumptions regarding the trips associated with logging and estimates of typical daily activity (Personal communication, Henry Alden, PALCO, Eureka, California, 1997). The key factors used in trip generation include the following:

- For logging trips, a factor of 4.5 thousand board feet (mbf) per truck was used in generating truck trips from the estimated harvest yield for each alternative.
- For finished product truck trips, a factor of 0.70 of the logging truck trips was used to estimate truck trips from the sawmills.
- For logging truck driver/employees, a factor of four trips per day was used to estimate the number of employees from the total daily logging trips. This factor is based on review of the average driving distances and the hours of daylight during the late spring and summer months when logging is at its

peak. During this period both logging and sawmill plant operations often work double shifts, thus enabling more truck trips during the working hours at logging sites.

- Total employees for each alternative was taken from Table 3.13-9, and the percentage of employees attributed to logging and to sawmill activity was taken from the footnote of that table.
- Site activities related to trip generation were estimated from the number of employees and level of activity at the sites. The number of logging sites was estimated using 18 loaded logging trucks at 4.5 mbf per truck as a typical daily yield from any one site.
- The number of non-logging truck trips generated by employees, equipment, and equipment service was calculated using a factor of 0.5 logging truck trips for all harvest sites.

The direct effects of the alternatives would be on the highway and road system described in Section 3.12.1 because almost all of the activity involved in the harvesting and processing of timber is done by trucks and other roadway vehicles. The indirect effects would be on the rail and water transport systems; however, these effects are secondary in nature. The traffic impact data for the alternatives are presented in Table 3.12-2 for the existing plus project condition, and represent an averaged, typical daily activity for each alternative. Because of the location of the logging activity, road construction, and maintenance on PALCO lands, exact routes used by logging and finished product trucks are not known. Therefore, an estimated average distance of travel was calculated with the two sawmills at Scotia as the end points for the logging trips. Table 3.12-2 therefore presents a daily picture of traffic activity applicable to any location within the PALCO holdings.

The data in Table 3.12-2 are based on the first decade estimated mbfn yield for each of the alternatives. The harvest yield data used for trip generation are from Table 3.13.8, which gives the average annual harvest in mbfn/yr. For Alternatives 1, 2a, and 4 the Elk River harvest is included in the trip generation and traffic analysis. The annual estimates were converted to daily averaged yields, and then converted to the daily trips associated with the harvesting and processing of timber. The daily activities of PALCO not directly associated with the timber harvest were estimated from the employee data provided by PALCO and internal estimates of the level of employment for each area of activity.

The base year, which represents PALCO activities within the last 10 years, is calculated from information provided by PALCO. A 10 percent increase of the decade one estimate for Alternative 1 (Proposed Action/Proposed Project) is a close working approximation of the past decade's yield (Personal communication, Henry Alden, PALCO, Eureka, California, 1997). This calculation became the basis for the conversion to daily trips.

Thresholds of Significance

The fundamental criterion for determining a significant effect is if an action will "cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system" (CEQA Guidelines, Appendix G). The measure of the criterion is made in terms of change in the LOS for a given roadway or intersection which is a part of the street and highway system. The LOS ranges from LOS A, which is free flow, to LOS F, which is a fully congested operation. There is usually a volume to capacity (v/c) ratio designation for each LOS grade.

Table 3.12-2. Transportation, Existing Conditions

Decade No. 1	Base Year	Alternative 1	Alternative 2	Alternative 2a	Alternative 3	Alternative 4
Trips						
Daily Harvest	779	554	708	705	264	518
Daily Sawmill	2,623	1,958	2,620	2,699	935	1,912
Daily Other	696	416	486	386	296	386
Total Daily Trips	4,096	2,928	3,814	3,790	1,495	2,816
Vehicle Miles Driven						
PALCO Roads Vehicle Miles	10,410	7,175	9,877	9,609	6,202	8,481
Public Roads Vehicle Miles	95,373	68,582	87,800	86,863	32,504	63,082
Total vehicle Miles	105,783	75,757	97,677	96,472	38,706	71,563
Comparison with Base Year						
% Difference with Trip Gen.		-28.50%	-6.90%	-7.50%	-73.50%	-31.25%
% Difference Total Veh. Miles		-28%	-7.50%	-8.90%	-73.40%	-32.35%
Source: Foster Wheeler Environmental Corporation, 1998						

For roadway segments, criteria for significance generally applied include:

- A change in letter grade based on the change in the v/c ratio when the project traffic is added to the existing condition traffic.
- A change in the v/c ratio greater than 0.03 or an increase in the base year traffic greater than 3 percent.

For intersections, because they are usually the areas where bottlenecks and delays occur in the roadway system, the following criteria were generally applied:

- A change in the letter grade of the intersection LOS when the project traffic is added to the turning movements passing through the intersection.
- A change of 0.02 in the overall v/c ratio for the intersection when the project traffic is added to the turning movements passing through the intersection.

These criteria are applied to the peak hour travel period traffic flow. Lane capacities for street segments and for turning lanes at intersections can vary. In general, the following capacities are recommended (Institute of Transportation Engineers, 1982; Transportation Research Board, 1985; City of San Diego, 1987):

- Freeways—2,000 vehicles per hour per lane (vphpl)
- Urban Arterial—1,800 vphpl
- Major Streets—1,700 vphpl
- Rural Arterials—1,600 vphpl
- Rural Collectors—1,200 vphpl
- Residential Streets—500 to 700 vphpl
- Through Lanes—1,700 vphpl
- Left-turn Lanes—1,500 vphpl

Comparison of Alternatives with Existing Conditions

As noted in Section 2.5.1, the evaluation of the No Action/No Project differs under CEQA and NEPA. For CEQA the No Action alternative is not projected into the long-term future. In the short term, the conformance with the FPRs, the federal and California ESAs, and other federal and state laws is determined on a THP and site specific basis. A wide variety of mitigation measures tailored to local conditions is applied with the purpose of avoiding significant environmental effects and take of listed species. Consequently, most significant environmental effects of individual THPs can be expected to be mitigated to a level of less than significant through implementation of the No Action/No Project alternative.

As noted in Section 2.5.1, the NEPA evaluation of the No Action alternative considers the implementation of wide, no-harvest RMZs as well as restrictions on the harvest of old growth redwood forest to model conditions over the short and long term. Ranges of RMZs are considered qualitatively because it is expected that adequate buffer widths could vary as a result of varying conditions on PALCO lands.

Based on the transportation data in Table 3.12-2, there are no significant effects on the circulation system by any of the action alternatives. In all cases, the base year representing the daily trips and miles traveled from the Project Area are greater than the future proposed alternatives. Alternatives 2 and 2a are the only alternatives that approach the level of trip activity as the base year case. These alternatives are at more than seven percent less traffic activity for both trip generation and total vehicle miles traveled. The other alternatives range from 28 percent to 73 percent less traffic activity than the base year traffic on the local and regional street

system. Alternative 3 is the alternative which is 73 percent less than the base year traffic activity based on trip generation and 74 percent less traffic activity based on total vehicle miles traveled. This would represent a significant decrease in traffic flow in comparison to the base year due to the fact that PALCO represents almost 50 percent of the timber industry-related traffic in the existing conditions case.

There is also the effect of reduced employment associated with these alternatives. The 1,500 employees were adjusted for each alternative using a factor of six employees per 1,000 mbf harvested. This factor was used to establish the PALCO employment for each alternative and the change from the 1,500 employees identified for the base year case. Total employment ranges from 1,500 plus 188 contract employees in the base year to 521 plus 61 contract employees for Alternative 3. If there is a significant increase in imported logs in response to a reduced local harvest by PALCO, as in Alternative 3, there would also be an increase in the number of logging transport trucks traveling increased miles. There is no way to estimate a balance between reduced employment and the practical level of imported logs based on the current information available. This possibility and potential addition to PALCO-generated logging/timber harvest traffic are discussed in more detail following the Cumulative Effects section.

Because there are no increases in the daily timber activities associated with the alternatives, there would be no significant effects on rail and water transportation systems. The decreases associated with some of the alternatives would be absorbed by other timber harvesters in the area or by the importing of logs. These systems generally transport finished products from the mills and some select logs depending on overseas demand.

LOCALIZED EFFECTS AND CONCERNS

The level of trip making activity will be diminished in comparison to the existing conditions for all of the alternatives considered in the preceding section. Therefore, there will be no new or additional impacts on the transportation system in the PALCO logging area. There are however, localized logging activity effects which currently exist, and will continue under the proposed project, albeit at a diminished level. The effects relate to traffic safety and temporary localized traffic congestion caused by a concentration of logging trucks and equipment in the shifting areas of logging activity. Local citizen groups and individuals have communicated concerns regarding the intrusion of logging vehicles through residential communities, and appropriate design safeguards where new logging roads connect onto public roadways. The following addresses key areas of local concern.

Construction of logging roads and access to public roadways

The construction of logging roads, particularly where they take access onto local county roads have been identified as an area of concern to the local community. The key elements typically involve the location of the access point in terms of safe stopping sight distance, adequate gaps in the traffic flow on the public roads to allow the turning movements of the logging trucks, and proper roadway maintenance during the time that the logging road is in use. These concerns are also shared by the public agencies who have responsibility for the construction and operation of public roadways. The State of California provides regulatory requirements that agencies responsible for public roadways have in place an access and encroachment permit process. Both CALTRANS, District 01 and Humboldt County have regulations requiring permits by property owners to take access onto public roadways.

CALTRANS has had an encroachment permit process in place for over 50 years. The process evaluates both permanent and temporary access requests, reviewing the access design plans, location and safety criteria, as well as the expected traffic volume from the new facility. In the case of District 01, in addition to the requirements of an encroachment permit and adherence to safe design criteria for logging roads, the District also reviews THPs submitted to CDF for potential impacts on the state highway system. The THPs are sent to the CALTRANS District office by the CDF as standard part of their review process. CALTRANS reviews both new logging access and existing access points depending on the location and nature of the Timber Harvest Plans, (Personal communication, Guy Luther, Associate Transportation Engineer, CALTRANS District 01, September 11, 1998). Humboldt County also has an access permit process which requires county property owners submit access design plans for both temporary and permanent access to the county public road system. The proposed new access location can be reviewed from county road maps and reviewed in the field to ensure that adequate sight distance and other design criteria are met by the access proponent. As with CALTRANS, these regulations have been a part of the county land use and development review process for several decades, (Personal communication, Randy Smith, Engineering Technician II, Land Use and Development Review, Humboldt County, September 9, 1998). Citizen groups and individuals who have concerns regarding specific access locations for logging roads contact the appropriate public officials who have jurisdiction over the roadway system.

Traffic congestion and safety concerns associated with logging trucks on residential or local community roadways

As the logging activities of PALCO shift from logging area to logging area within the

PALCO ownership, different portions of the region's and local area road system will be effected. The effects can take two major forms; by concentrating the logging trucks and equipment in one area, the public roadways may temporarily experience some congestion and inconvenience due an increase in traffic flow; and because of the operating characteristics of logging truck and other vehicles associated with logging activity, increased caution and anxiety by local area drivers will increase. This is not a new situation, but has been an on-going part of the logging industry activities in the Humboldt County region. To the extent possible, PALCO management has attempted to alleviated these concerns by finding and implementing alternatives to using local community roadways. For example, PALCO has recently received communications from the residents in the Fresh Water Creek logging area regarding logging vehicles on the local roads and the level of activity on the weekends. PALCO was able to find alternative routes away from the residential areas, and rerouted the logging vehicles working in the area. They also evaluated the work schedules and shifts, and reduced the level of logging activity on the weekends, (Personal communication, T. Herman, PALCO, September 9, 1998). PALCO also reminds it's drivers that extra caution and care is expected when logging vehicles are driving through local residential communities and on the county's local access roads. These actions include cautionary signing as the vehicle leaves the logging road and enters the public right-of-way, and periodic reminders from supervisory personnel.

Logging vehicle maintenance and operation

The primary response to problems in this area, (as perceived by the motoring public) is education and enforcement of existing vehicle code laws and regulations. Logging trucks have been involved in single vehicle accidents due to excess speeds, and have caused damage to other vehicles due to

debris and spill from the trucks. The California Highway Patrol has law enforcement responsibilities for both the state highway system and the Humboldt County road system under an agreement between Humboldt County and the State of California. PALCO management also provides driver awareness training and has a policy which discourages driving behavior which violates vehicle operation laws. The problem with logging trucks and debris from the loads on the vehicles is something of a different situation. Because logs are considered vegetable/organic matter, the same as produce from the agricultural fields, loads do not have to be covered or steps taken to eliminate loose debris and materials which might fall from a truck. The vehicle may not be driven in an unsafe manner and the logs must be safely secured to the logging vehicles, but responsibility for avoiding spills and material which falls from a truck is up to the general motoring public. As a policy PALCO encourages its drivers to maintain clean vehicles and to check their loads for any materials which could pose a hazard to the other vehicles on the public roads.

Roadway maintenance and traffic safety precautions

The access points on the public roadway system for logging roads may have debris which includes mud, rocks, bark and other materials deposited on the public roads. Both CALTRANS and Humboldt County have road maintenance crews who inspect the road system on a daily basis, (Personal communications, Guy Luther, CALTRANS, and Randy Smith, Humboldt County, September 11, 1998). When these crews observe problems at logging road access points they notify the appropriate logging company and request immediate cleaning of the public roads. Because of the permitting process, these crews are also aware where logging road intersections are planned, and check them with increased frequency once logging activity begins. If from the review

process it is determined that a sufficient volume of logging trucks will be entering the public roads from the logging roads, CALTRANS will require the posting of warning signs on the state highways being accessed which indicate that slow trucks will be entering the roadway at the intersection ahead. These can be either temporary signs or permanent signs depending on the length of the logging activity (Personal communication, Mark Suchanek, CALTRANS, District 01, September 14, 1998). Precautionary signing can also be required by Humboldt County at the access points of logging roads with the county road system. As part of the cumulative impacts assessment required in THPs, site-specific analyses of potential traffic problems are addressed, pursuant to Title 14, California Code of Regulations, Section 912.9. (Personal communication, Jim Adams, PALCO, September 14, 1998).

3.12.3 Cumulative Effects

The cumulative level of traffic activity for the alternatives is shown in Table 3.12-3. This table is similar to Table 3.12-2 except that the data are based on decade two projections of timber harvest yield. This decade corresponds to the typical transportation horizon year for cumulative analysis. The daily trips and miles traveled for each alternative reflect the average annual and daily harvest activity for each alternative. The assumptions regarding employment and associated trips are the same as Table 3.12-2 for the existing conditions (decade one) analysis. The projects for the cumulative year traffic on the street and highway system are based on 20-year growth factors used by CALTRANS for future year projections of traffic demand (Personal communications, Guy Luther, Associate Transportation Engineer; Cheryl S. S. Willis, District Division Chief; Douglas Macivor, Senior Transportation Engineer; Al Arona, Associate Transportation Engineer, CALTRANS, Sacramento, California, 1997). These

Table 3.12-3. Transportation Data, Cumulative Conditions

Decade No. 2	Base Year	Alternative 1	Alternative 2	Alternative 2a	Alternative 3	Alternative 4
Trips						
Daily Harvest	779	471	600	600	224	451
Daily Sawmill	2,623	1,635	2,220	2,180	724	1,616
Daily Other	696	337	315	339	308	305
Total Daily	4,098	2,443	3,135	3,119	1,256	2,372
Vehicle Miles Driven						
PALCO Roads Vehicle Miles	10,410	6,222	7,503	7,553	5,650	6,106
Public Roads Vehicle Miles	95,373	54,711	72,609	72,263	26,977	55,046
Total Vehicle Miles	105,783	60,933	80,112	79,816	32,627	61,152
Comparison with Base Year						
% Difference with Trip Gen.		-40.40%	-23.50%	-23.90%	-69.30%	-42.10%
% Difference with Veh. Miles		-42.40%	-24.30%	-24.70%	-69.20%	-42.20%
Source: Foster Wheeler Environmental Corporation, 1998						

growth factors assume that the basic economic character of the North Coastal Region would remain the same. The role of timber, agriculture, and fishing would remain the major factors in the economy. The 20-year traffic volume projections, based on CALTRANS expansion factors, are shown in Figure 3.12-4 for the Humboldt County Area.

The traffic levels indicated for the second decade are less than the first decade levels for all the alternatives. As a share of the future cumulative year traffic volume, the traffic demand generated by activities associated with the alternatives would be a decreased share over time compared to past activities. Table 3.12-4 presents the percentage differences between Alternative 1 and the other alternatives based on trip generation and vehicle miles traveled.

Alternative 1 (No Action/No Project) becomes the comparative base for the alternative analysis. However, the increment of additional traffic associated with Alternative 2 (Proposed HCP/SYP) and Alternative 2a (No Elk River Property), although significant when compared with Alternative 1, is an insignificant share of the future traffic, when examined against future projections. Alternative 3 would represent a significant decrease in the PALCO share of cumulative traffic, and Alternative 4 would have an almost identical effect as the No Action/No Project alternative. All of these alternatives would generate less traffic than the historical base year alternative calculated from the past decade of 1987 to 1997.

The cumulative effects of the alternatives are insignificant, particularly in examining the peak hour traffic flow. Alternative 2 would add an additional 692 trips on a daily basis compared to Alternative 1, which at 2,443 daily trips would represent the PALCO share of the cumulative regional trips. The approximately 69 trips during the evening peak hour would represent a

conservative 10 percent of the PALCO daily additional trips. These trips would not generated from a single site, but from 18 to 20 different sites, creating a substantially reduced impact on any one segment of the roadway system. To further examine if this level would create a significant impact, the segment of US 101 near the sawmills at Scotia and Fortuna was selected for evaluation. The peak-hour volume was estimated at 10 percent of the cumulative daily traffic and the peak hour for logging activities at 0.08 of the site-generated traffic above the amount generated in Alternative 1 for the sawmills. Accounting for double shifts at the sawmills, 990 peak-hour trips would be generated. Using a daily traffic volume of 26,000 from Figure 3.12-4 for US 101, a peak-hour volume of 2,660 was calculated. Using 0.08 of the site-generated traffic ($0.08 \times 990 = 79.2$) would result in approximately 2.97 percent of the peak hour traffic on this link of the US 101 Freeway. The additional increment of traffic from Alternative 2 would represent approximately 2.6 percent of the total peak-hour traffic if all the traffic were concentrated at the Scotia mills in the evening peak hour. In either case this would be an insignificant share of the future daily and peak-hour traffic on the state highway system examined.

Potential Traffic From Imported Timber

Section 3.13 discusses the likelihood of PALCO's purchasing additional timber to maintain sawmill employment. This is based on statements by PALCO in the HCP/SYP that it would try to mitigate employment impacts by purchasing additional timber. Table 3.13-9 provides an estimate of the mbf/yr to be purchased if historical levels of PALCO employment were to be maintained. These purchases of additional timber would represent additional logging truck trips (to the trips generated by the identified alternatives) into the Humboldt Area, and possibly the region, depending on the source of the be

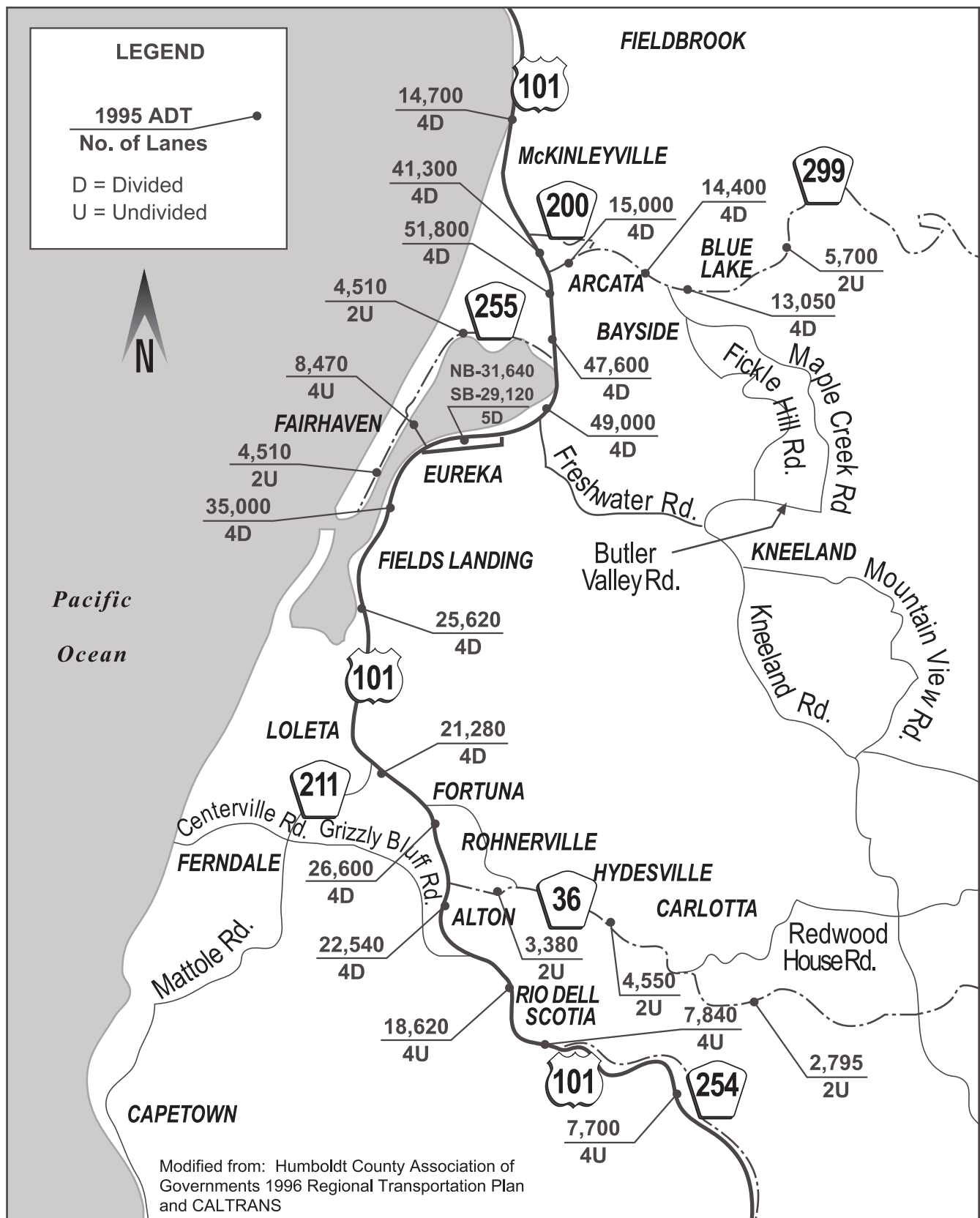


Figure 3.12-4.
State Highway and Expressway System
with Traffic Volumes and Number of Lanes

Table 3.12-4. Comparison of Alternatives for Cumulative Effects

Alternatives	Alternative 1	Alternative 2	Alternative 2a	Alternative 3	Alternative 4
Total Trips	2,443	3,135	3,119	125	2,372
Percent Difference		+ 28.3%	+ 27.7%	- 48.6%	- 02.1%
Total Vehicle Miles	60,933	80,112	79,816	32,627	61,152
Percent Difference		+ 31.5%	+ 31%	- 46.5%	+ 0.36%
Source: Foster Wheeler Environmental Corporation					

timber. While this calculation can be made, the extent to which PALCO would implement purchase of additional timber is unknown. Section 3.13 speculates that this purchase is unlikely for Alternatives 1, 3, and 4 and quite likely for Alternatives 2 and 2a. Since the sites for additional timber purchase are unknown, it is not possible to calculate the effect of potential trips to deliver this timber.

3.12.4 Mitigation

All the alternatives would generate less traffic activity than the average annual activity by PALCO during the past decade. Comparison of the trip levels and vehicle mile estimates for each alternative with the estimates for the past decade shows that the alternatives range from 9.4 percent less trips generated for Alternative 2 (3,714 versus 4,098 in the past decade) to 69.4 percent fewer trips generated for Alternative 3 (1,256 versus 4,098 in the past decade). Therefore, applying the standard of a significant increase in traffic above the existing levels, which would negatively affect the LOS of transportation facilities, there is no impact. At the cumulative level, the decade two traffic for all alternatives is less than the base year traffic; when using Alternative 1 as the base for comparison, none of the other alternatives' share of cumulative traffic would cause a significant impact. This in turn means that there are no mitigation

requirements which are caused by the proposed alternatives.

Creation of the Reserve under all alternatives would not increase regional traffic demands. The Reserve would be managed for the protection of natural values with reasonable public access as noted in Section 3.13. Users of the Reserve would be drawn primarily from the existing tourist and outdoor user base. If traffic problems develop, they would be dealt with in the detailed schedule of activities prepared by the cooperative management team.

AB 1986 Conditions

Under the HCP, either the Owl Creek or the Grizzly Creek MMCA would be available for harvest. AB 1986 conditions the expenditure of state funds for acquisition of the Headwaters Forest and other lands on the inclusion of several provisions in the final HCP, the IA, and the ITPs intended to strengthen protections for covered species. Should PALCO include those provisions in the final HCP, state monies would be appropriated to the state Wildlife Conservation Board to fund the state's share of the cost of acquiring approximately 7,500 acres of private forest lands, including the Headwaters Forest. Under AB 1986, the Owl Creek MMCA would be protected from harvest for the life of the ITPs, and the Grizzly Creek MMCA would be protected for five years from the date of the adoption of the final HCP. AB

1986 also appropriates additional funding for the future opportunity to purchase Owl Creek. Any funds remaining from those appropriated for the purchase of the Owl Creek MMCA could be used to purchase tracts of the Elk River Property and previously unlogged Douglas-fir forest land within the Mattole River watershed.

The state managing agency and management prescriptions are unknown, and these acquisitions are somewhat speculative. Considering the legislative intent behind AB 1986, it is assumed that purchased lands would be managed similarly to the Headwaters Reserve. These anticipated acquisitions would protect old-growth and residual redwood stands and some Douglas-fir stands within these tracts in perpetuity.

The combined effect of land acquisition and additional protections on the landscape could reduce the availability of timber and, thus, could further reduce timber supply in the local area. Reductions in timber supply would reduce traffic associated with timber harvest. It is assumed that public access to the state-acquired Owl Creek MMCA lands would be limited because of their location within PALCO property. Access to the Grizzly Creek MMCA would be from the existing state park. Thus it is unlikely that there would be any substantial changes in traffic associated tourist or recreation activities.